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Soviet Ability to Profit from Disruptions in Exports of
Key Minerals and Metals From Southern Africa

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Summary

Growing unrest in South Africa has raised the possibility that the supply of key minerals and metals to the West could be disrupted. The USSR, a major producer of several of these commodities, would probably view a disruption as an opportunity to step up exports of some commodities to help ease its hard currency earnings squeeze. Depending on the make-up and length of the disruption as well as price responses in world markets, Moscow could potentially realize an annual earnings windfall of several billion dollars. Indeed, the Soviet windfall could be next to nothing if the disruption is short-lived. On the other hand, intense nationwide strife in South Africa bordering on civil war that resulted in prolonged interruptions of supplies of several commodities could bring in as much as an additional \$10 billion for Moscow.

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Most of the gain in Soviet earnings would result from increased sales of gold--already an important hard currency earner. With large gold reserves and surplus annual production rising, the USSR is in a position to boost sales, at least in the short term. Moscow would also profit from increased prices of such commodities as diamonds and platinum-group metals, but it is not now in a position to substantially increase exports of these commodities.

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This memorandum was prepared by [redacted]
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 be directed to Chief, Economic Performance Division [redacted]

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Introduction

Growing problems in South Africa have raised the possibility that the United States and its allies could be cut off from key metals and minerals from South Africa and, perhaps, some of its neighbors. Such losses could result from a number of factors, including--in descending order of likelihood--deliberate actions of the present government, a substantial increase in unrest, or, in the longer term, the accession of a new South African government with a more favorable political orientation toward Moscow. The US Intelligence Community believes there is a better-than-even chance that supplies of one or more strategic metals (platinum-group metals, manganese, chromium, cobalt, and vanadium) from southern Africa will be disrupted during the next five years.¹ If Western governments, for example, implement--or appear prepared to implement--stronger sanctions against the South African regime, Pretoria may retaliate by disrupting--at least temporarily--the flow of some strategic commodity, most likely one of the platinum-group metals. [REDACTED]

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Because the USSR is also a supplier to the West of some of these commodities, there is concern about possible Soviet reactions that could further disrupt supplies. The West, however, is only heavily dependent on the USSR for supplies of platinum-group metals. [REDACTED]

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Moscow currently earns much-needed hard currency by selling gold, diamonds, platinum-group metals, chrome ore, and other minerals in international markets, although most of its production surplus of many of these items is exported to other Communist countries. Soviet earnings from sales of these commodities amounted to an estimated \$5.4 billion in 1986, nearly 20 percent of total Soviet hard currency earnings (see table 1).

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A disruption in the flow of South African minerals, for whatever reason, would upset the supply situation in the industrialized countries and strengthen the market position of the USSR. But Soviet opportunities and actions would be directly related to the type and severity of internal developments in South Africa that caused the supply disruption. Indeed, the most probable scenario--an intentional cutoff of one commodity by the present government--would create the least opportunity for Moscow to benefit. The greatest Soviet gain would result from a disruption of gold supplies, but we view a cutoff of gold from South Africa as unlikely in the absence of widespread civil strife.

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Soviet Attitude Toward Supply of Key Commodities to the West

Moscow probably would view a disruption in supplies of key commodities from southern Africa as an opportunity to step up where possible its exports to help ease its hard currency earnings bind. But long-term Soviet objectives also may include

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Table 1

USSR: Estimated Hard Currency Earnings from
Exports of Key Minerals and Metals, 1986

	million US \$
Total	5,436
Gold	4,140
Diamonds	1,000
Platinum-group metals	270
Manganese	0
Chromite ore	6
Vanadium	0
Cobalt	0
Ferroalloys ^a	20

^a Includes ferrochrome, ferrovanadium, ferromanganese, and other ferroalloys.

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[REDACTED]

the obstruction or denial to the West of access to key mineral resources, although the record is less than clear. For military purposes alone the leadership would like to be in a position to clamp off strategic metals supplies to the West when and if they desired to do so. Unfortunately, direct evidence of Soviet intentions with respect to African metals is extremely sparse.

[REDACTED] Moscow would like to take advantage of opportunities to exploit South African mineral resources and to deny such resources to the West. In somewhat similar fashion, Soviet journals clearly reflect Moscow's understanding of Western dependence on strategic minerals, and the USSR's unique role as both a major producer and exporter of a number of these metals makes a denial strategy plausible.

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[REDACTED]

On the other hand, powerful commercial interests have kept the Soviets in the past from applying such a clamp when it has been in their power to do so--with their own metals and minerals exports to the West. In the metals markets the Soviets generally have followed the pragmatic and highly businesslike practices of their Western counterparts. They have, for example, scrupulously stuck to commitments and have not reneged on existing contracts as a result of changes in political relations between Moscow and its customers. Indeed, in recent years the Soviets have derived political mileage in Western Europe and the Third World by contrasting Soviet reliability as a supplier of goods with the

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US-led economic embargo in 1980 in response to the Soviet invasion of Afghanistan. [redacted]

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This does not necessarily mean that the Soviets would not attempt to manipulate Western commodities markets or that they do not try to alter unfavorable contracts by withholding materials from Western markets. Reporting in recent years has detailed Soviet efforts to substantially raise prices of both palladium and diamonds by controlling market supplies. Indeed, from the time the Soviets announced in late 1982 that they would withhold palladium supplies from the marketplace until the end of 1984, the price of the metal nearly tripled. [redacted] Soviet collusion with the Central Selling Organization of the South African mining group to control supplies of diamonds marketed in the West similarly is well documented. [redacted]

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On balance, however, we believe it highly unlikely that a halt in exports of key commodities from South Africa would trigger a cutoff in Soviet sales. The Soviet leadership has only a limited number of options to deal with its hard currency crunch--estimated oil revenues of \$7-8 billion in 1986 were just half of peak earnings of \$15.6 billion in 1983--and would not likely consider that any potential strategic advantage of a cutoff would outweigh the loss of revenue from export sales. Moreover, the Soviets would be reluctant to encourage Western efforts to develop substitutes or otherwise reduce consumption of key commodities--other than gold or diamonds--that would have

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sizable long-term costs to the USSR in lost sales. Moscow would also want to take advantage of higher commodity prices created by a crisis. [redacted]

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Commodity AnalysisGold

South Africa and the USSR together account for about 60 percent of world gold production. South Africa is by far the largest producer, with a 40-percent share of world output (see inset). The Soviet share of world output has declined from about 25 percent in 1976 to 20 percent in 1986. We estimate Soviet gold output in 1986 at about 325 metric tons (10.5 million troy ounces).² Moscow's gold sales of about 350 tons earned \$4.1 billion last year, 14 percent of total hard currency earnings.

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During 1987-89 we project the USSR will have about 290 to 305 tons of surplus production each year above domestic consumption that could be sold without drawing down its reserve. Although this supply alone would not be adequate to make up the losses from a large cutback in South African sales, Moscow's stockpiled reserve--which we estimate at about 2,290 tons at the end of 1986--could be used to support additional short-term sales. It is conceivable that the Soviets would be willing to draw down their reserve by as much as 25 to 30

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Inset

The World Gold Market

In view of South Africa's role as the world's major source of gold, a disruption in exports--even for a short period of time--could seriously affect the market.^a A major factor in the international gold market is that annual new supplies of gold--mostly mined gold in non-Communist countries plus Soviet sales--are extremely small compared to the total holdings by governments, financial institutions, and private speculators. The total flow of gold in 1986--1,650 tons--is only about 5 percent of estimated official government stocks of approximately 35,600 tons and probably is less than 20 percent of the total stocks held by private speculators and hoarders in the West.^b Because of these large stocks, the volume of world gold trade often is augmented considerably by shifts in official and private holdings that can influence prices. [REDACTED]

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Other, smaller changes in market supply and demand could eventually compensate for part of a cutback in South African sales. The consumption of gold in industrial, dental, and jewelry applications, which together account for approximately 70 percent of world consumption, could be reduced by conservation and substitution of other metals in certain applications. In addition, increased recycling could increase the supply; the quantity of gold contained in jewelry and other fabricated products is several times greater than annual world production. It is impossible to predict the reaction of large gold holders and the other changes in Western supply and demand to a sharp drop in South African sales. Gold holders, for example, could either try to boost their holdings in anticipation of higher prices or, if prices rose sharply, sell and take profits on a portion of the large stocks already held. [REDACTED]

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End Inset

^a A disruption in production would quickly affect South African exports because South Africa reportedly had a gold stockpile of only about 55 tons at yearend 1986, about one month's sales supply at the 1986 level. [REDACTED]

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^b The official Western gold stocks figure is for the end of 1985. A 1980 report by a South African gold company suggests that there were nearly 10,000 tons of gold coins and bullion in private hands in the West. [REDACTED]

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percent--the equivalent of one year's sales from South Africa.

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Moreover, since the price of gold would probably increase under a disruption scenario, the Soviets could expect to increase gold earnings, even at sales levels lower than would be necessary to fully compensate for the loss of South African exports. Thus, Moscow could adopt a cautious policy, forgoing increases in sales volumes in order to keep gold reserves at current levels as a hedge against the need to finance purchases of Western grain in the event of poor harvests.

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We believe it is more likely that the Soviets would adopt an aggressive gold sales policy to maximize their earnings, especially if they viewed the trade disruption as a short-run phenomenon. This may be a particularly attractive option if the current hard currency bind worsens or if Gorbachev's timetable for industrial modernization slips substantially, increasing pressure to step up imports of Western machinery.

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Diamonds

The US Bureau of Mines estimates that the USSR produces about 11 million carats of diamonds annually, making it one of the largest producers in the world. Roughly 40 percent of Soviet production consists of diamonds of gemstone quality; the remainder are industrial stones. The USSR and South Africa produce almost 20 percent each of the world's diamond gemstones. Sales to the West of Soviet gemstones--both rough and

polished--earn an estimated \$1 billion annually in hard currency. Most of the USSR's supply of industrial diamonds is used domestically or exported to other Communist countries.³

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For several decades, Moscow has sold its rough gemstones through the Central Selling Organization (CSO), the marketing arm of DeBeers Consolidated Mines--a South African-based company. The CSO markets roughly 80 percent of the world's output of uncut diamonds, including production from the USSR, South Africa, Namibia, Australia, Zaire, and Botswana. The Soviets independently market their polished gemstones, and we believe these sales fluctuate with hard currency needs.

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Moscow stands to gain from its sales of gemstones if South African diamond supplies are disrupted. The CSO--which built up a large stock of diamonds during 1982-84 when demand was low--probably could maintain a fairly steady supply of gemstones and help mitigate price increases. If supply disruptions persisted, however, diamond prices would increase. Under such a scenario, the Soviets most likely would continue to abide by their past agreements with the CSO and refrain from marketing their own

³ Gemstones are much more important as a source of hard currency than industrial diamonds. For example, the average wholesale price per carat in November 1986 of one-half carat polished gemstones (color G and clarity VS₂) was \$1,900. The price of diamond gemstones varies greatly according to such factors as demand, size, rarity, and number of flaws. In contrast, the 1986 import price of natural industrial diamonds (grit and powder) was only \$1.08 per carat.

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rough diamonds.⁴ The USSR probably has an escalation clause that guarantees Moscow part of any increased revenue from sales of rough diamonds and would also benefit from increased prices of polished stones. [REDACTED]

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The Soviets could also benefit by increasing the supply of polished diamonds made available to the market. Moscow, however, may not be able to respond in a timely fashion. [REDACTED]

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[REDACTED] the Soviets have not always responded quickly to changes in demand, probably because Almazyuvireksport (the foreign trade organization responsible for the trade of diamonds, jewelry, and precious stones and metals), the cutting factories, and the mines are under control of different ministries. Moscow has probably maintained a stockpile of diamonds, but we do not know its size nor are we able to determine how quickly the gemstones could be released to the market. [REDACTED]

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Platinum-Group Metals

In 1985, Soviet and South African exports accounted for roughly 90 percent of the West's supply of platinum-group metals

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--30 percent from the USSR and 60 percent from South Africa.⁵ The USSR supplied approximately 10 percent of the platinum and 50 percent of the palladium while South Africa supplied about 85 percent of the platinum and 35 percent of the palladium.⁶ These countries are also the major suppliers to the West of other platinum-group metals. In 1985, Moscow earned some \$270 million from sales of platinum-group metals, about 1 percent of total hard currency export earnings. [REDACTED]

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We believe the USSR would probably not be able to increase exports of platinum-group metals enough to compensate for a large, sustained cutback in South African exports, although our information on domestic production and use is limited. Moscow probably does not have a large platinum supply--production is only a small share of South African platinum exports, and Soviet ores yield roughly three times as much palladium as platinum. A substantial share of platinum output is already sold to the West, and exports have declined since the mid-1970s (see table 2). The Soviets could divert supplies now going to Eastern Europe or

⁵ Platinum group metals (PGM) are platinum, palladium, rhodium, iridium, ruthenium, and osmium. They are used in the production of jewelry, automotive pollution control devices, wear-resistant electrical contacts, magnets, and cathodic protection systems. PGM are also used in dentistry, aircraft and missiles, and as catalysts in chemical production. [REDACTED]

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⁶ Nearly all the Soviet supply is produced as a byproduct of nickel production at the Noril'sk Mining and Metallurgical Combine in Siberia. Information related to production is extremely limited; our estimate of production--4 million troy ounces in 1985--is based primarily on estimates of nickel production at Noril'sk and published Soviet studies that give the percentage content of PGM in Noril'sk ores in the early 1970s. [REDACTED]

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Table 2

USSR: Estimated Exports of Platinum Group
Metals to the West^a

	thousand troy ounces					
	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>
Total	1,686	1,652	1,571	1,595	1,837	1,508
Platinum	403	331	319	264	228	238
United States	29	29	14	18	20	22
Western Europe	214	133	109	128	89	110
Japan	160	169	196	118	119	106
Palladium	1,214	1,285	1,217	1,289	1,565	1,222
United States	340	324	378	389	495	273
Western Europe	383	428	209	168	221	274
Japan	491	533	630	732	849	675
Other ^b	69	36	35	42	44	48
United States	51	20	11	12	11	17
Western Europe	8	6	7	3	8	10
Japan	10	10	17	27	25	21

^a The USSR does not publish platinum group metal trade statistics. The figures are derived mainly from partner country trade statistics.

^b We believe this category is comprised mostly of rhodium.

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substitute other metals for platinum in some applications to increase exports, but such actions would probably not provide much of a boost in export earnings or be timely enough to ease a Western supply crunch. [REDACTED]

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Soviet palladium production is much larger than South African exports, but a considerable portion is already exported to the West. We believe Moscow has a national-level stockpile of platinum-group metals, but its size is unknown. Much of it is likely dedicated to strategic uses during national emergencies, but there could be sizable surplus inventories of palladium. If so, they could offset a portion of the loss of South African palladium exports for some time. The key unknown is the amount being consumed for domestic needs. Production increases alone could not provide much of an export supply boost during the balance of the 1980s because we project only moderate annual output growth and rising domestic consumption. Even if Moscow assigned a higher priority to boosting production, construction of new capacity would require several years. [REDACTED]

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Western metals traders state that at least through late 1986, Moscow has not increased platinum-group metals sales despite rapidly rising prices and the need to compensate for hard currency earnings shortfalls. It is possible the Soviets are waiting for further price increases, but it is likely they would have already increased sales if there were a substantial surplus; Moscow is pushing hard to increase sales of other commodities to compensate for hard currency losses. [REDACTED]

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Manganese

The USSR is the world's largest producer of manganese, accounting for roughly 35 percent of world production.⁷ Moscow has not reported any exports of manganese concentrate to the West since 1978, probably because of decreasing Western demand for low-grade Soviet manganese (see table 3). Indeed, the Soviets have been importing high-grade ore from Gabon and Australia for several years. Similarly, the USSR currently does not export much ferromanganese or silicomanganese--the principal manganese alloys used in the steel industry.⁸ Moreover, much of the ferromanganese produced in the USSR does not meet Western standards. Tightening of world supplies could hurt Moscow's effort to upgrade its ferromanganese industry which depends on imports of higher grade ore. [REDACTED]

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Although South Africa ranks a distant second in world manganese output--accounting for about 15 percent--it supplies more than one-third of the manganese ore needs of Japan and several West European countries. Additionally, Pretoria exports substantial supplies of manganese alloys to the West, including about 32 percent of US ferromanganese imports in 1985. [REDACTED]

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[REDACTED]

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⁸ [REDACTED] the chief of the Soviet ferroalloy directorate reported in late 1984 that the USSR annually produces 1 million metric tons of standard ferromanganese and 1.4 million metric tons of silicomanganese. [REDACTED]

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[REDACTED]

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Table 3

USSR: Exports of Manganese Concentrate^a

	thousand metric tons					
	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>
Total	1,255	1,194	1,144	1,079	1,081	1,126
United States	0	0	0	0	0	0
Western Europe	0	0	0	0	0	0
Japan	0	0	0	0	0	0
Eastern Europe	1,183	1,150	1,096	1,032	1,026	1,031
Other ^b	72	44	48	47	55	95

^a Although Soviet official statistics report manganese ore output and exports, we believe the product is actually concentrate.

^b North Korea and unspecified.

Source: Vneshnyaya trgovlya SSSR (annual issues).

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[redacted]

The Soviets probably would not attempt to replace any of South Africa's supply of manganese. Soviet production of manganese concentrate has stagnated at roughly 10 million metric tons since the late 1970s. Older mining basins are suffering from depletion of high-quality ores. The Soviets are planning a new manganese production base in the Ukraine, but the ores are of low quality and harder and more expensive to process. Soviet consumption of manganese is unlikely to decrease in the next five years despite planned slow growth in steel production. The Soviets may realize some savings in consumption as their steel industry is modernized, but this will not result in a large surplus in the near term. [redacted]

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[redacted] we do not know whether the Soviets stockpile more manganese ore than needed to maintain normal concentrate and ferroalloy operations. [redacted]

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Chromium

The USSR is the world's largest producer of chromite, the principal ore of chromium--used principally as an alloying element in steel and nonferrous metals--accounting for about 35 percent of world production. South Africa is the second largest producer with a 31-percent share of world output. Zimbabwe, with major transportation links through South Africa, accounts for about 5 percent of world chromite production. [redacted]

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The Soviets export roughly 500,000 metric tons annually or

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about 15 percent of their output, mainly to Eastern Europe (see table 4). Exports to the West have declined from about 1 million tons in 1970 to only 58,000 tons in 1985. Japan remains the only consistent Western buyer, but Soviet supplies accounted for only 5 percent of total Japanese chromite imports in 1985. The United States last purchased Soviet ore in 1982. Chromite exports earned Moscow about \$6 million in 1985, according to partner country trade data. In contrast, several countries including France, West Germany, Italy, Japan, and the United States are dependent on South Africa for close to 50 percent or more of their chromite imports. [REDACTED]

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The USSR also exports a small amount of ferrochromium, mostly to Eastern Europe. Austria and West Germany import some ferrochromium from the USSR, but Soviet supplies account for only a small amount of their total imports. As with chromite, South Africa accounts for a high proportion of total imports of ferrochromium of many industrialized, steel-producing countries including the United States, West Germany, and Japan. The West could be particularly vulnerable because the supply from another major exporter, Zimbabwe, could be affected by a disruption of transportation links through South Africa. [REDACTED]

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The Soviets would be hard pressed to provide much additional chromite if South Africa's exports to developed countries, which totaled over 1 million metric tons in 1985, were disrupted. Most chromite is used in the steel industry, especially for stainless

Table 4

USSR: Exports of Chromium Ore

	thousand metric tons					
	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>
Total	576	576	561	496	442	471
United States	99	76	11	0	0	0
Western Europe	33	38	21	20	0	0
Japan	0	30	76	78	30	58
Eastern Europe	371	405	427	371	383	385
Other ^a	73	27	26	27	29	28

^a North Korea and unspecified.

Source: Vneshnyaya trgovlya SSSR (annual issues).

steel, specialty sheets, and superalloys, and domestic demand for these products has been rising. As with manganese, production of chromium ore in the USSR has stagnated. The Soviets reported 3.4 million metric tons of output in 1985, roughly the same amount produced in 1980. The Soviet chromium industry is undergoing a shift in raw material supply as ores that can be surface mined are being depleted, and underground mines must be exploited. However, development of underground mines has been hampered by shortages of construction supplies and equipment, and we do not expect any large increase in chromite production until after 1990. Indeed, the Soviets could be forced to cut back exports if ore production problems become worse. Although the Soviets traditionally have been reliable suppliers of chrome ore, they reneged on Japanese contracts in 1984 for ore worth \$4 million on the world market because of temporarily severe production difficulties. The Soviets could divert a portion of existing chromite sales to its CEMA partners, but would probably view the small amount of increased earnings as not worth the risk of disrupting hard-pressed East European economies. [REDACTED]

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If ferrochromium supplies from southern Africa were disrupted, Moscow would likely continue its small exports to the West in order to maintain hard currency earnings. The USSR probably would not divert ferrochromium supplies from its East European allies or domestic uses, many of which are military.⁹

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[REDACTED]
[REDACTED] the USSR annually produces 850,000 metric tons of ferrochromium.

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[redacted]

The Soviets could increase domestic production of ferrochromium because some older furnaces could be converted from producing one ferroalloy to another. But they would need to divert supplies of ore from other end users such as the refractory industry. Although this ore generally is lower grade, new advances in steelmaking technologies permit the use of lower grade ferrochromium. The price of ferrochromium would probably have to increase substantially for the Soviets to take such action.

[redacted]

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Vanadium

The USSR probably would not be able to compensate for any sizable cutback in exports of vanadium products from South Africa. We know very little about the Soviet vanadium industry, but most vanadium appears to be consumed internally.¹⁰ Moscow has pressed for increased use of vanadium to improve the quality of domestic steel products for more than a decade, and vanadium alloys have important uses in high-speed machine tools and armored vehicles. The Soviets export some vanadium slag and ferrovanadium, but little, if any, seems to be reaching the West, according to metals traders. Soviet statistics indicate that exports of vanadium slag steadily dropped in the 1970s, and a Western trade journal reported that Moscow did not respond to increased market demand in the early 1980s. Both may have

¹⁰ The US Bureau of Mines estimates that the USSR produced 9,500 metric tons (contained vanadium metal) of vanadium ores and concentrates in 1985. [redacted]

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signified an increased need for vanadium in domestic uses. The Soviets have imported vanadium pentoxide from Finland for several years, and they indirectly import vanadium through purchases of high-strength, low-alloy steel pipe from Western Europe and Japan. [REDACTED]

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Cobalt

The USSR will not be in a position to export cobalt to the West if supplies from Zaire and Zambia were cut back or cut off as a result of developments in South Africa. We project through the balance of the 1980s the USSR will be a small net importer or barely self sufficient. Both the USSR and the West would be hurt by such a disruption; in 1985 the USSR was 10 to 15 percent dependent on these countries for its cobalt supplies. [REDACTED]

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Potential for Increased Hard Currency Earnings

Because the magnitude, composition, and duration of possible supply disruptions and ensuing price fluctuations are impossible to predict, we have made only rough estimates of potential increases in Soviet hard currency earnings, making several assumptions. Specifically:

- o The USSR would not reduce existing sales of key commodities to the West in response to a disruption in supplies from southern Africa.
- o The analysis is limited to the gain in earnings for one year, that is, for a continuous period of 12 months following the onset of a trade disruption. Shorter supply cutoffs or reductions would result in smaller

increments to earnings. Indeed, if traders recognized a cutoff as a very short, discrete event, there could be only minimal impact on international markets and, consequently, little opportunity for the USSR to profit from it.

- o The Soviets would not or could not--either for reasons of domestic need or existing excess capacity in the West--increase exports of platinum, rhodium, manganese, vanadium, cobalt, or most ferroalloys to the West.
- o Commodity price increases of 25, 50, and 100 percent are used to gauge the benefit to the Soviets in the event of a disruption in lieu of precise estimates of market supply and demand elasticities. [REDACTED]

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Incremental hard currency earnings from increased exports of gold, palladium and chromite--at existing prices--could total more than \$8 billion over a 12-month period, almost entirely from gold sales if the Soviets were willing to draw down their existing stockpiled reserve to compensate completely for one year's worth of South African exports (see table 5). It is highly unlikely, however, that the USSR would realize such an increase in gold earnings because other holders of gold stocks may increase gold sales to partially offset South African losses, and other changes in supply and demand would occur. [REDACTED]

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Even in the face of a world gold supply stabilized by increased sales from the USSR and other holders, speculative

Table 5

USSR: Potential Earnings from Increased Exports of Key
Commodities to the West Over a 12-Month Period

	<u>Annual Exports</u>		<u>Incremental Export Earnings (million US \$)^a</u>
	<u>Current</u>	<u>Postulated Maximum</u>	
Gold (metric tons)	350 ^b	990 ^c	8,200
Diamonds ^d	NA	NA	NA
Manganese concentrate (thousand metric tons)	0	0 ^e	0
Platinum (thousand troy ounces)	275 ^f	275	0
Palladium (thousand troy ounces)	1,315 ^f	1,565 ^g	30
Rhodium (thousand troy ounces)	40 ^f	40	0
Chromite (thousand metric tons)	90 ^e	195 ^h	10

^a At current prices (gold: \$400 per troy ounce; palladium: \$120 per troy ounce; and chromite: \$100 per ton of lumpy ore, 48-percent chromium content).

^b Estimated 1986 net sales.

^c Assuming the Soviets would be willing, on a one-time basis, to draw down their stockpiled reserve to compensate fully for one year's exports from South Africa (640 metric tons in 1986).

^d We have insufficient information on the amount and composition of Soviet diamond exports to make an estimate.

^e Even though the Soviets could divert current exports to Eastern Europe and other Communist countries, existing excess capacity in the West and the relatively poor quality of Soviet manganese would prevent Moscow from selling much manganese in the West.

^f Estimated average annual exports during 1981-85.

^g Estimated exports in 1984.

^h Assuming the diversion to the West of 25 percent of existing Soviet exports to Eastern Europe and other Communist countries.

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demand for gold, which is likely to be a volatile function of events in South Africa, could increase free market gold prices dramatically. The same is true to a lesser extent for the other commodities we examined. Price increases would occur based on market perceptions that the USSR and other countries would not be able to fully compensate for South African supply in the short run given fairly stable world demand for these commodities. Even with sales at existing levels, for example, the Soviets could reap an estimated \$2.2 billion hard currency windfall from gold and an additional \$675 million from sales of other commodities if prices simultaneously rose 50 percent and held at the higher level for one year (see table 6).

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Table 6

USSR: Estimated Annual Hard Currency Windfall from
Commodity Price Increases^a

	million US \$		
	Price Increase		
	<u>25-percent</u>	<u>50-percent</u>	<u>100-percent</u>
Gold	1,125	2,250	4,500
Diamonds	250	500	1,000
Platinum ^b	35	71	142
Palladium	39	78	156
Rhodium ^c	12	24	48
Chromite	2	4	9

^a At current sales levels.^b Based on current price of \$517 per troy ounce.^c Based on current price of \$1,200 per troy ounce.

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Distribution for "Soviet Ability to Profit from Disruptions in Exports of Key Minerals and Metals from Southern Africa" (SOV M-87-20026X)

Internal

- 1 - D/SOVA (4E58 HQ)
- 2 - DD/SOVA (4E58 HQ)
- 3 - NIO/USSR (7E47 HQ)
- 4 - NIO/Economics (7E47 HQ)
- 5 - NIO/Warning (7E47 HQ)
- 6 - DDI Registry (7E47 HQ)
- 7 - NIC/AG (7E47 HQ)
- 8 - Ch, Product Evaluation Staff (6F44 HQ)
- 9 - Ch, Intelligence Liaison Staff (7G50 HQ)
- 10 - CPAS/CSG (7F30 HQ)
- 11 - OIR/LDSD (1E4810 HQ)
- 12 - FBIS/AG (1014 Key)
- 13 - OLDA/UE (1G43 HQ)
- 14-19 - CPAS/IMC/CB (7G07 HQ)
- 20 - C/IMC/CPAS (7G25 HQ)
- 21 - SA/Dissemination Analysis/CPAS (7G50 HQ)
- 22 - DDO/SE (5B02 HQ)
- 23 - SOVA/ES/CIB (4E66 HQ)
- 24 - C/SOVA/NIG (4E65 HQ)
- 25 - C/SOVA/DEIG (5E56 HQ)
- 26 - C/SOVA/RIG (5E25 HQ)
- 27 - C/SOVA/SIG (4E31 HQ)
- 28 - C/SOVA/DEIG/DED (5E56 HQ)
- 29 - C/SOVA/DEIG/DID (4E31 HQ)
- 30 - C/SOVA/NIG/DPD (4E65 HQ)
- 31 - C/SOVA/NIG/EPD (5E66 HQ)
- 32 - SOVA/NIG/EPD/EP (5E66 HQ)
- 33 - SOVA/NIG/EPD/RM (5E66 HQ)
- 34 - SOVA/NIG/EPD/FT (5E66 HQ)
- 35-37 - SOVA/NIG/EPD/IA (5E66 HQ)
- 38 - C/SOVA/RIG/TWAD (4E28 HQ)
- 39 - C/SOVA/RIG/TWAD/AFLAME (4E28 HQ)
- 40 - NIO/AF (7E48 HQ)
- 41 - C/ALA/A/SA (3F29 HQ)
- 42 - C/OGI/SRD/RA (3G31 HQ)

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- 45 - CIA Rep/NMIC (2D901A Pentagon)

External

- 46 - Col. Tyrus W. Cobb, Director, East-West Section, European and Soviet Affairs, National Security Council (373 EOB)
- 47 - Paula J. Dobriansky, European and Soviet Affairs, National Security Council (368 EOB)
- 48 - CIA Representative/NMIC, Department of Defense (2D901A Pentagon)

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- 49 - [] Dean, Defense Intelligence College, DIAC (C3-124 Bolling AFB) 25X1
- 50 - Dr. Donald Goldstein, Principal Director, International Economics, Trade, and Security Policy, Department of Defense (4C76 Pentagon)
- 51 - Andrew W. Marshall, Director, Net Assessment, Department of Defense (3A930 Pentagon)
- 52 - [] Chief, A424, National Security Agency 25X1
- 53 - [] Chief, Resources Division (Bolling AFB)
- 54 - [] DIA/DB-4E1, DIAC (Bolling AFB)
- 55 - [] DIA/DB-4F3, DIAC (Bolling AFB)
- 56 - [] DIA/DB-4D4, DIAC (Bolling AFB)
- 57 - Dennis T. Avery, Office of Economic Analysis, Bureau of Intelligence and Research, Department of State (8439 State)
- 58 - Robert H. Baraz, Director, Office of Analysis for the Soviet Union and Eastern Europe, Bureau of Intelligence and Research, Department of State (4758 State)
- 59 - John Danylyk, Chief, Communist Economic Relations Division, Bureau of Intelligence and Research, Department of State (8662 State)
- 60 - Paul Goble, Office of Analysis for the Soviet Union and Eastern Europe, Bureau of Intelligence and Research, Department of State (4844 State)
- 61 - Robert W. Clark, Deputy Director (Economic Affairs), Office of Soviet Union Affairs, Bureau of European and Canadian Affairs, Department of State (4223 State)
- 62 - Ralph Lindstrom, Director, Office of Economic Analysis, Bureau of Intelligence and Research, Department of State (8722 State)
- 63 - Lynn Pascoe, Deputy Director, Office of Soviet Union Affairs, Bureau of European and Canadian Affairs, Department of State (4217 State)
- 64 - Jack Brougher, Jr., Chief, USSR Division, Office of Eastern Europe and Soviet Affairs, Department of Commerce (6854 Main Commerce)
- 65 - Byron L. Jackson, Director, Office of Intelligence Liaison, Department of Commerce (6854 Main Commerce)
- 66 - Robert Wilson, Office of Strategic Resources, Department of Commerce (4616 Main Commerce)
- 67 - Susanne Lotarski, Director, Office of Eastern Europe and Soviet Affairs, Department of Commerce (3410 Main Commerce)
- 68 - Douglas R. Mulholland, Special Assistant to the Secretary (National Security), Department of the Treasury (4324 Main Treasury)
- 69-70 - Dr. John Morgan, Chief Staff Officer, US Bureau of Mines, Department of the Interior (1048 Columbia Plaza)

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